

An Incident of Wolf, *Canis lupus*, Predation on a River Otter, *Lutra canadensis*, in Minnesota

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Evidence was found of Gray Wolves (*Canis lupus*) killing and partially consuming a radio-marked River Otter (*Lutra canadensis*) in Voyageurs National Park, Minnesota. There is little evidence in the literature to suggest that Otters are a regular source of prey for Wolves, however, wolves may incidentally kill River Otter.

Key Words: Gray Wolf, *Canis lupus*, River Otter, *Lutra canadensis*, Wolf food habits, River Otter mortality, predation.

The North American River Otter (*Lutra canadensis*) has few natural enemies and is safe from most predators while in water. Larsen (1983) suggested that Killer Whales (*Orcinus orca*) consume an occasional Otter and Vallentine et al. (1972) found traces of Otter hair in the stomach of an American Alligator (*Alligator mississippiensis*). Otters are undoubtedly more vulnerable on land (Melquist and Donkert 1987): Bobcats (*Felis rufus*), Dogs (*C. familiaris*), Coyotes (*C. latrans*), and Red Foxes (*Vulpes vulpes*) are land carnivores documented as killing Otters (Seton 1926; Grinnell et al. 1937; Young 1958; Mowbrey et al. 1937). River Otter hair was found in three seats from Gray Wolves in north central Minnesota (Reimann 1983), but it is unknown whether wolves had scavenged or deliberately killed the Otter. This note documents the killing and partial consumption of an Otter by Gray Wolves.

During a study of River Otter distribution and abundance in Voyageurs National Park (VNP), Minnesota (48°30'N, 93°50'W) 42 Otters were live-captured and 25 were surgically implanted with temperature-sensitive radio transmitters (Route 1988). Average duration of radio contact was 246 days/Otter (range 7 – 433) for a total of 6150 Otter days.

On 5 May 1986, yearling female Otter F810 was captured, transmitted and released. This Otter was subsequently relocated 10 times and was located alive < 24 hours before being found dead on 2 September 1986. The carcass was found within her known home range in lowland forest 100 m from water. Fresh Wolf tracks and scats were found at the kill-site and a Wolf pack with pups was known to occupy a rendezvous site < 3 km away. The abdominal cavity of the Otter had been torn open and portions of the ribs and viscera were absent. The left forepaw, right hind leg, and tail had been chewed away. The radio transmitter was found among partially masticated viscera 1 m from the carcass. Tooth marks were present on the transmitter's wax coating.

The Otter was necropsied at the U.S. Fish and Wildlife Service's National Wildlife Health Laboratory (NWHL) in Madison, Wisconsin. It was determined that the Otter was in a good state of nutrition and the stomach and intestinal contents indicated it was actively feeding prior to death. There were no signs of infectious diseases or other debilitations. The long bones had been crushed, the lower mandibles were fractured, and traumatic lesions on the back and pelvis were "consistent with those expected to be produced by a large powerful predator such as a Wolf" (R. K. Stroud, DVM and P. A. Gullett, DVM, NWHL, personal communication). The final diagnosis was predator-related trauma.

This Wolf-killed Otter was one of three Otters determined to have died from natural mortality in our study (two other Otters were diagnosed by NWHL as dying from chronic cystitis [urinary infections], although stress from handling may have hastened death). Few radiotelemetry studies have been conducted on Otter where Wolves are present. Reid (1984) transmitted 26 Otter in north eastern Alberta and speculated that an unknown predator may have consumed one Otter. Although Wolf food habits studies show that Otter are of little importance to Wolves, where the two coexist, River Otter may be subjected to occasional wolf predation.

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First Specimens of the Rainbow Smelt, *Osmerus mordax*, from Lake Winnipeg, Manitoba

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Two Rainbow Smelt, *Osmerus mordax*, were caught in commercial gillnets in the South Basin of Lake Winnipeg in September and October, 1990. Remains of a third specimen were identified in stomach contents of a Walleye, *Stizostedion vitreum vitreum*, caught in the South Basin in early June, 1990. Smelt may have reached Lake Winnipeg via one or more of three routes: downstream dispersal from the English River system; transport by man from the English River System to Berens Lake, in the watershed of the North Basin of Lake Winnipeg; and transport by man directly to the Red River/Lake Winnipeg System from the Great Lakes, Northwestern Ontario or Lake Sakakawea, North Dakota (Missouri River). The apparent absence of smelt from the Winnipeg River and Berens Lake, along with the South Basin location of the three specimens reported here, does not favour the first two possibilities. An anecdotal report, unsubstantiated by a specimen, raises the possibility that smelt may have been transported directly to the Red River/Lake Winnipeg System as early as 1975.

Key Words: Rainbow Smelt, Lake Winnipeg, Manitoba, Hudson Bay Drainage, exotic fish, introduction, zoogeography.

On 26 September, 1990, Mr. Mike Martin, a commercial fisherman operating on Lake Winnipeg, out of Arnes Harbour, Manitoba, caught a Rainbow Smelt, *Osmerus mordax*, in a 8.26 cm mesh (stretched measure) gillnet, set overnight, fishing a depth range of 1 to 6 m, in 11.3 m water depth, about 5.6 km due east of Arnes Harbour, at 50° 48'N, 96° 52'W (specimen 1). A second smelt (specimen 2) was caught between 1 and 6 October 1990 by Mr. Glen Halgren, also a commercial fisherman, operating out of Victoria Beach, Manitoba. This specimen was caught about 5.6 km west of the Government Dock at Victoria Beach, at 50° 42'N, 96° 40'W, or about 22 km south-southeast of specimen 1, in an overnight set using the same type of gear as Mr.

Martin, but fishing in water 9 m deep, in a depth range of 1 to 9 m. Both fish had their teeth entangled in threads or knots in the mesh and were found dead in the nets. The fishermen brought their catches to two of us (Campbell and Derksen, respectively) for identification.

A third specimen was identified by one of us (Remnant) among the stomach contents of a Walleye (*Stizostedion vitreum vitreum*) caught in the south basin of Lake Winnipeg and landed in the commercial catch at Riverton, Manitoba, on 4 June 1990. This sample was the only one of 952 adult Walleye stomachs (510 with identifiable contents) which contained smelt remains. The stomachs were collected from commercial fish landings at points around both